

## Circulation Research

VOLUME 51

JULY-DECEMBER 1982

## VOLUME AUTHOR INDEX

- Abiko, Y., 733  
 Adams, H.R., 662  
 Adeagbo, A.S.O., 580  
 Ahn, J., 465  
 Alperovich, G., 722  
 Alpert, N.R., 777  
 Althaus, J.S., 569  
 Altschuld, R.A., 560  
 Andrews, E., 181  
 Anversa, P., 19  
 Apstein, C.S., 465  
 Aronson, R.S., 189  
 Ashihara, T., 448  
 Ashraf, M., 683  
 Ashton, J.H., 525  
 Auletta, M., 494  
  
 Bache, R.J., 196  
 Baer, R.W., 371  
 Bailey, J.C., 637  
 Barger, A.C., 816  
 Barr, R.C., 602  
 Baruffi, S., 330  
 Bassett, A.L., 486  
 Becker, P., 532  
 Belardinelli, L., 569  
 Bell, A.J., 216  
 Bell, D.R., 305  
 Berkoff, H.A., 363  
 Berne, R.M., 569  
 Bevan, J.A., 421  
 Beydler, S., 117  
 Bilezikian, J.P., 250  
 Bishop, V.S., 261, 391  
 Blair, R.W., 83  
 Bohr, D.F., 769  
 Botterman, B.R., 400  
 Bowie, E.J.W., 587  
 Braakman, R., 822  
 Branch, R.A., 67  
 Brierley, G.P., 560  
 Briggs, L.L., 465  
 Bristow, J.D., 371  
 Brunner, M.J., 624  
 Buchweitz, E., 494  
 Buga, G.M., 421  
 Bukauskas, F., 321  
 Burt, J.M., 543  
  
 Cameron, J.S., 486  
 Cant, J., 816  
 Capasso, J.M., 189  
 Carretero, O.A., 385  
 Cassidy, S.S., 525  
 Chou, S.-Y., 703  
 Clark, E.B., 810  
 Coccani, F., 580  
 Cockrell, C.S., 652  
 Colli-Franzone, P., 330  
 Corr, P.B., 26, 743  
 Cox, J.W., 694  
 Crafford, W.A., Jr., 26  
 Cutler, R.E., 216  
  
 Damon, D.N., 711  
  
 De Mello, W.C., 1  
 DeMey, J.G., 439  
 Dole, W.P., 261  
 Duling, B.R., 711  
  
 Elharrar, V., 637  
 Ellis, E.F., 652  
 El-Sherif, N., 152  
 Elzinga, G., 430  
 Eng, C., 822  
 Epstein, K., 486  
  
 Farhi, E.F., 816  
 Fass, D.N., 587  
 Faubert, P.F., 703  
 Fenton, R.A., 569  
 Ferris, T.F., 694  
 Fiscus, R.R., 551  
 Flatman, J.A., 514  
 Foreman, R.D., 83  
 Francisco, L.L., 694  
 Frank, J.S., 117  
 Fujiwara, H., 683  
 Fujiwara, S., 751  
 Fuster, V., 587  
  
 Gaasch, W.H., 465  
 Galloway, M.P., 225  
 Gerkens, J.F., 67  
 Gerová M., 817  
 Geselowitz, D.B., 602  
 Gettes, L.S., 614  
 Gold, F.L., 196  
 Goldhaber, S.Z., 181  
 Gorczynski, R.J., 711  
 Gorman, A.J., 73  
 Gorman, M.W., 411  
 Gough, W.B., 152  
 Goulette, R., 777  
 Granger, H.J., 43  
 Grant, A.O., 271  
 Greene, A.S., 624  
 Griffen, S.H., 532  
 Gross, R.W., 26  
 Guerri, L., 330  
  
 Hariman, R.J., 760  
 Hathaway, D.R., 448  
 Haworth, R.A., 363  
 Heesch, C.M., 391  
 Heidemann, H.Th., 67  
 Hermsmeyer, K., 532  
 Hill, J.L., 614  
 Hines, J.J., 102  
 Hintze, T.H., 56  
 Hoffman, B.F., 760  
 Hoffman, J.I.E., 371  
 Hohl, C., 560  
 Hoki, N., 821  
 Holmes, E.W., 102  
 Holubarsch, C., 777  
 Hori, S., 819  
 Horn, v.d., G.J., 822  
 Hu, N., 810  
 Huis, v., G.A., 822  
  
 Hunter, D.R., 363  
  
 Imaizumi, T., 448  
 Ingwall, J.S., 181  
 Insel, P.A., 504  
 Irisawa, H., 142  
 Iwamoto, G.A., 400, 525  
  
 Jackson, E.K., 67  
 Jalife, J., 722  
 Johansen, L., 385  
 Johnson, M.D., 816  
 Jope, C.A., 421  
 Jope, R.S., 421  
 Josa, M., 587  
  
 Kagiya, Y., 614  
 Kajiya, F., 821  
 Kallman, C.H., 624  
 Kaufman, M.P., 400, 525  
 Kaye, M.P., 587  
 Kerber, R.E., 205  
 Kirk, E.S., 822  
 Klitzman, B., 711  
 Kloner, R.A., 181  
 Kontos, H.A., 652  
 Kootsey, J.M., 347  
 Korsgaard, N., 514  
 Kozlovskis, P., 486  
 Krams, R., 822  
 Kreman, M., 117  
 Krueger, J.W., 666  
 Kunze, D.L., 241  
 Kupfer, L.E., 250  
 Kurachi, Y., 142  
  
 Lachenbruch, P.A., 295  
 Langer, G.A., 131, 543  
 Langewouters, G.J., 822  
 Lanier, S.M., 594  
 Lee, B.I., 26, 743  
 Linden, J., 569  
 Lindner, A., 216  
  
 Macchi, E., 330  
 Macho, P., 56  
 Mahan, L.C., 504  
 Malik, K.U., 594  
 Marchetti, G., 19  
 Marcus, M.L., 10, 205  
 Mason, R., 532  
 Matsuda, H., 142  
 Mayer, S.E., 551  
 McClellan, G., 802  
 McCluskey, E.R., 743  
 McGrath, A., 787  
 Megna, J.L., 722  
 Mehra, R., 152  
 Melissari, M., 19  
 Mifflin, S.W., 241  
 Millard, R.W., 683  
 Miller, W.T., III, 602  
 Mitchell, J.H., 400  
 Moore, T.J., 314  
 Morff, R.J., 43

## Circulation Research

VOLUME 51

JULY-DECEMBER 1982

## VOLUME AUTHOR INDEX

- Abiko, Y., 733  
 Adams, H.R., 662  
 Adeagbo, A.S.O., 580  
 Ahn, J., 465  
 Alperovich, G., 722  
 Alpert, N.R., 777  
 Althaus, J.S., 569  
 Altschuld, R.A., 560  
 Andrews, E., 181  
 Anversa, P., 19  
 Apstein, C.S., 465  
 Aronson, R.S., 189  
 Ashihara, T., 448  
 Ashraf, M., 683  
 Ashton, J.H., 525  
 Auletta, M., 494  
  
 Bache, R.J., 196  
 Baer, R.W., 371  
 Bailey, J.C., 637  
 Barger, A.C., 816  
 Barr, R.C., 602  
 Baruffi, S., 330  
 Bassett, A.L., 486  
 Becker, P., 532  
 Belardinelli, L., 569  
 Bell, A.J., 216  
 Bell, D.R., 305  
 Berkoff, H.A., 363  
 Berne, R.M., 569  
 Bevan, J.A., 421  
 Beydler, S., 117  
 Bilezikian, J.P., 250  
 Bishop, V.S., 261, 391  
 Blair, R.W., 83  
 Bohr, D.F., 769  
 Botterman, B.R., 400  
 Bowie, E.J.W., 587  
 Braakman, R., 822  
 Branch, R.A., 67  
 Brierley, G.P., 560  
 Briggs, L.L., 465  
 Bristow, J.D., 371  
 Brunner, M.J., 624  
 Buchweitz, E., 494  
 Buga, G.M., 421  
 Bukauskas, F., 321  
 Burt, J.M., 543  
  
 Cameron, J.S., 486  
 Cant, J., 816  
 Capasso, J.M., 189  
 Carretero, O.A., 385  
 Cassidy, S.S., 525  
 Chou, S.-Y., 703  
 Clark, E.B., 810  
 Coccani, F., 580  
 Cockrell, C.S., 652  
 Colli-Franzone, P., 330  
 Corr, P.B., 26, 743  
 Cox, J.W., 694  
 Crafford, W.A., Jr., 26  
 Cutler, R.E., 216  
  
 Damon, D.N., 711  
  
 De Mello, W.C., 1  
 DeMey, J.G., 439  
 Dole, W.P., 261  
 Duling, B.R., 711  
  
 Elharrar, V., 637  
 Ellis, E.F., 652  
 El-Sherif, N., 152  
 Elzinga, G., 430  
 Eng, C., 822  
 Epstein, K., 486  
  
 Farhi, E.F., 816  
 Fass, D.N., 587  
 Faubert, P.F., 703  
 Fenton, R.A., 569  
 Ferris, T.F., 694  
 Fiscus, R.R., 551  
 Flatman, J.A., 514  
 Foreman, R.D., 83  
 Francisco, L.L., 694  
 Frank, J.S., 117  
 Fujiwara, H., 683  
 Fujiwara, S., 751  
 Fuster, V., 587  
  
 Gaasch, W.H., 465  
 Galloway, M.P., 225  
 Gerkens, J.F., 67  
 Gerová M., 817  
 Geselowitz, D.B., 602  
 Gettes, L.S., 614  
 Gold, F.L., 196  
 Goldhaber, S.Z., 181  
 Gorczynski, R.J., 711  
 Gorman, A.J., 73  
 Gorman, M.W., 411  
 Gough, W.B., 152  
 Goulette, R., 777  
 Granger, H.J., 43  
 Grant, A.O., 271  
 Greene, A.S., 624  
 Griffen, S.H., 532  
 Gross, R.W., 26  
 Guerri, L., 330  
  
 Hariman, R.J., 760  
 Hathaway, D.R., 448  
 Haworth, R.A., 363  
 Heesch, C.M., 391  
 Heidemann, H.Th., 67  
 Hermsmeyer, K., 532  
 Hill, J.L., 614  
 Hines, J.J., 102  
 Hintze, T.H., 56  
 Hoffman, B.F., 760  
 Hoffman, J.I.E., 371  
 Hohl, C., 560  
 Hoki, N., 821  
 Holmes, E.W., 102  
 Holubarsch, C., 777  
 Hori, S., 819  
 Horn, v.d., G.J., 822  
 Hu, N., 810  
 Huis, v., G.A., 822  
  
 Hunter, D.R., 363  
  
 Imaizumi, T., 448  
 Ingwall, J.S., 181  
 Insel, P.A., 504  
 Irisawa, H., 142  
 Iwamoto, G.A., 400, 525  
  
 Jackson, E.K., 67  
 Jalife, J., 722  
 Johansen, L., 385  
 Johnson, M.D., 816  
 Jope, C.A., 421  
 Jope, R.S., 421  
 Josa, M., 587  
  
 Kagiya, Y., 614  
 Kajiya, F., 821  
 Kallman, C.H., 624  
 Kaufman, M.P., 400, 525  
 Kaye, M.P., 587  
 Kerber, R.E., 205  
 Kirk, E.S., 822  
 Klitzman, B., 711  
 Kloner, R.A., 181  
 Kontos, H.A., 652  
 Kootsey, J.M., 347  
 Korsgaard, N., 514  
 Kozlovskis, P., 486  
 Krams, R., 822  
 Kreman, M., 117  
 Krueger, J.W., 666  
 Kunze, D.L., 241  
 Kupfer, L.E., 250  
 Kurachi, Y., 142  
  
 Lachenbruch, P.A., 295  
 Langer, G.A., 131, 543  
 Langewouters, G.J., 822  
 Lanier, S.M., 594  
 Lee, B.I., 26, 743  
 Linden, J., 569  
 Lindner, A., 216  
  
 Macchi, E., 330  
 Macho, P., 56  
 Mahan, L.C., 504  
 Malik, K.U., 594  
 Marchetti, G., 19  
 Marcus, M.L., 10, 205  
 Mason, R., 532  
 Matsuda, H., 142  
 Mayer, S.E., 551  
 McClellan, G., 802  
 McCluskey, E.R., 743  
 McGrath, A., 787  
 Megna, J.L., 722  
 Mehra, R., 152  
 Melissari, M., 19  
 Mifflin, S.W., 241  
 Millard, R.W., 683  
 Miller, W.T., III, 602  
 Mitchell, J.H., 400  
 Moore, T.J., 314  
 Morff, R.J., 43

- Morgan, D.L., 667  
Moritoki, H., 421  
Motulsky, H.J., 504  
Moustafa, E., 504  
Mulieri, L.A., 777  
Mullins, R.J., 305  
Mulvany, M.J., 514  
Murphy, M.P., 560  
Murtha, T.J., 494  
Musso, E., 167  
Myerburg, R.J., 486
- Nakamura, M., 448  
Needleman, P., 743  
Newell, J.B., 181  
Nilsson, H., 514  
Noma, A., 142
- Olivetti, G., 19  
Olley, P.M., 580  
Ørstavik, T., 385  
Owens, G.K., 280
- Peach, M.J., 657  
Peters, K.G., 10  
Pohost, G.M., 181  
Pollack, G.H., 37  
Porush, J.G., 703  
Pressler, M.L., 637  
Proppe, D.W., 73
- Randall, O.S., 479  
Rhody, J., 662  
Rich, T.L., 117, 131  
Riedel, G.L., 233  
Robinson, R.B., 250  
Rüegg, J.C., 290
- Rutecki, G.W., 694
- Saady, J.J., 652  
Sabina, R.L., 102  
Saffitz, J.E., 26, 743  
Sakai, K., 733  
Salata, J.J., 722  
Sato, S., 683  
Savion, S., 787  
Scheel, K.W., 819  
Schwartz, S.M., 280  
Scicli, A.G., 385  
Searls, J.C., 295  
Shasby, D.M., 657  
Shasby, S.S., 657  
Shepherd, A.P., 233  
Shoukas, A.A., 95, 624  
Simpson, P., 787  
Sipkema, P., 822  
Sloan, J.D., 347  
Snively, M.D., 504  
Sobel, B.E., 26  
Solaro, R.J., 290  
Sonneblick, E.H., 189  
Spach, M.S., 347, 602  
Spaggiari, S., 330  
Sparks, H.V., 411  
Spitalewitz, S., 703  
Strauss, H.C., 271  
Sullivan, J.M., 657  
Sussman, M.S., 624  
Sutko, J.L., 662  
Suzuki, H., 751  
Swain, J.L., 102
- Taccardi, B., 330  
Takeshita, A., 457
- Toda, N., 675  
Tomanek, R.J., 10, 295  
Tomonaga, G., 821  
Traweck, D.L., 652  
Tucker, M., 802
- Uhlig, P.N., 371
- van den Bos, G.C., 479  
Vanhoutte, P.M., 439  
Vassalle, M., 167  
Vassallo, D.V., 37  
Vatner, S.F., 56, 818  
Verrier, E.D., 371  
Viganotti, C., 330  
Vlahakes, G.J., 371  
Vogel, W.M., 465
- Wangler, R.D., 10  
Watanabe, A.M., 448  
Webb, R.C., 769  
Weber, R.N., 83  
Wei, E.P., 652  
Weisberg, A., 802  
Weiss, H.R., 205, 494  
Werth, D.K., 448  
West, A., 569  
Westerhof, N., 430, 479, 822  
Westfall, T.C., 225  
White, C.W., 205  
Williams, G.H., 314  
Winegrad, S., 802  
Winquist, R.J., 769  
Wong, S.S., 486
- Zeiler, R.H., 152  
Zinsmeister, A.R., 587

## Circulation Research

VOLUME 5

JULY—DECEMBER 1982

## VOLUME SUBJECT INDEX

## A

Acetylcholine, 421, 439, 760  
 Action potentials, 142, 321  
   duration, 486  
 Acute renal failure, 216  
 Acute resetting, 241  
 Adenine nucleotide, 102  
 Adenosine, 196, 569  
 Adenosine triphosphate, 439  
   ATP, 102  
   ATPase, 543, 802  
 $\beta$ -Adrenergic blockade, 73  
 Adrenergic nerve, 751  
 $\alpha$ -Adrenergic receptors, 250, 411  
 $\beta$ -Adrenergic receptors, 56  
 Adrenergic stimulation, 532  
 $\alpha$ -Adrenergic tone, 371  
 $\beta$ -Adrenergic tone, 371  
 $\alpha_2$ -Adrenoceptors, 225  
 $\beta$ -Adrenoceptors, 769  
 Adult rat heart myocytes, 560  
 Amantadine, 722  
 Aminophylline, 569  
 Amrinone, 662  
 Angiotensin-converting enzyme  
   inhibitor, 385  
 Angiotensin II, 216, 314, 594  
   blockade, 703  
   receptors, 314  
 Anisotropic cardiac muscle, 602  
 Aorta, 479  
 Aortic transplant, 587  
 Arachidonic acid, 439, 743  
 Arrhythmias, 27, 321, 486  
 Arterial smooth muscle, 439  
 Arteriole, 711  
 Arteriosclerosis, 587  
 Atenolol, 56  
 Atrial diameter, 205  
 Atrial fibrillation, 205  
 Atrial oxygen extraction, 205  
 Atrial perfusion, 205  
 Atrial receptors, 241  
 Atrium, 271  
 Atropine, 421  
 Automaticity, 722  
 Autonomic nervous system, 400  
 Autoradiography, 27  
 AV node, 569

## B

Baroreceptor reflex, 73, 95  
 Bilateral ventral flexor reflex tract,  
   400  
 Blood flow, 233  
   autoregulation, 43  
   coronary, 56  
 Blood pressure, 385  
 Border zone, 486  
 Brainstem, 400  
 Bronchial C-fibers, 525  
 Bullfrog ventricles, 551  
 Bursting, 722

## C

Cable properties, 637  
 Caffeine, 363

Calcium, 290, 602, 637  
   compartmentation, 543  
   low, 167  
   metabolism, 363  
   paradox, 131  
 Calmodulin, 448  
 Capillary density, 711  
 Capillary surface area, 295  
 Carbon dioxide, 652  
 Cardiac cell culture, 250  
 Cardiac chronotropy, 250  
 Cardiac electric field, 330  
 Cardiac hypertrophy, 189, 295  
 Cardiac pain, 83  
 Cardiac phosphorylase kinase, 448  
 Cardiopulmonary reflexes, 391  
 Cardiovascular reflexes, 525  
 Carotid sinus baroreceptors, 391  
 Catecholamines, 225  
 Cat trabecula, 430  
 Cell  
   death, 683  
   hypertrophy, 787  
   measurement of size, 787  
   viability, 560  
 Cell-to-cell coupling, 347, 614  
 Cerebellum, 400  
 Cerebral artery, 675  
 Cerebral blood flow, 652  
   distribution, 494  
 Cerebrovascular tone, 769  
 Cerebrum  
   capillary density, 494  
   open capillary density, 494  
   vasculature, 494  
 Cholinergic blockade, 73  
 Collateral blood flow, 683  
 Computer modeling, 504  
 Conduction failure, 486  
 Contractile force, 167  
 Contracture, 777  
 Converting enzyme, 385  
   inhibitor, 216  
 Coronary artery, 56  
   capacitance, 261  
   diastolic pressure-flow curves,  
     261  
   stenosis, 411  
   zero flow pressure, 261  
 Coronary autoregulation, 261  
 Coronary blood flow, 56  
 Coronary vasculature, 465  
 Cranial arteries, 421  
 Creatine  
   kinase, 131  
   phosphate, 102  
 Cross-bridges, 777  
 Crystal ionic radius, 131  
 Curve analysis, 73  
 Cyclic AMP, 551  
 Cyclic AMP-dependent protein ki-  
   nase, 551  
 Cytochalasins, 657  
 Cytoskeleton, 657

## D

Desensitization, 532

Determinants of conduction, 637  
 Diastole, ventricular compliance,  
   465  
 Diastolic depolarization, 167, 722  
 Dipyridamole, 10  
 Diuretics, 703  
 Doppler coronary velocity, 205  
 Dorsal aortic blood flow, 810  
 Drugs, 290

## E

Early ischemia, 683  
 Electrocardiology, 330  
 Electron microscopy, 683  
 Endoperoxide, 580  
 Endothelium, 657  
 Endothelium-dependent contrac-  
   tions and relaxation, 439  
 Enzyme release, 560  
 Epinephrine, 95  
 Essential fatty acids, 694  
 Excitation-contraction coupling,  
   363, 777  
 Excitatory junction potential, 751  
 Experimental myocardial infarc-  
   tion, 486  
 Extracellular potentials, 602

## F

Forward problem, 330  
 Free fluids, 305  
 Freeze fracture, 117

## G

Gel matrix, 305  
 Glycocalyx, 117  
 Glycogen, 683  
   phosphorylase, 733  
 Group IV afferents, 400  
 Growth regulation in culture, 787

## H

Heart, 290, 602, 802  
   dog, 733  
   guinea pig, 569  
   mouse, fetal, 181  
   ontogeny, 532  
   rat, 569  
   rate, 347  
   rate sensitivity, 73  
 High calcium, 167  
 High pressure liquid chromatogra-  
   phy, 225  
 Histochemistry, 802  
 Histology, 181  
 Human platelets, 314  
 Hyperemia, 711  
 Hyperplasia, 19  
 Hypertension, 225, 280, 295, 694  
 Hypertrophy, 19, 280  
 Hypothermia, 117, 131  
 Hypoxia, 321, 777

## I

[<sup>125</sup>I]IBB 2254, 250

Impedance, 479  
 Impulse propagation, 614  
 Indomethacin, 594  
 Inflammation, 743  
 Inhibitory junction potential, 751  
 Inosine, 181  
 Inotropic, 602  
 Inotropic actions, 662  
 Inter-capillary distance, 295  
 Intercellular communication, 321  
 Interstitial exclusion, 305  
 Interventricular septum, 131  
 Intracellular K activity Ion-sensitive microelectrode, 271  
 Intrinsic sympathomimetic activity, 532  
 Ion-sensitive microelectrode time constant, 271  
 Ischemia, 102, 560, 733  
   early, 683  
   modeled, 614  
 Ischemic-like insult, 181  
 Isochronal mapping, 152  
 Isoproterenol, 56  
 Isozymes, 802

**K**

6-Keto-PGE<sub>1</sub>, 67  
 Kidney, 504  
   vasodilator, 67  
 Kininase II, 385  
 Kinins, 385

**L**

Lactic dehydrogenase, 181  
 Lanthanum, 637  
 Laser diffraction, 37  
 Light microscopy, 683  
 Low pressure receptors, 241  
 Low sodium, 167  
 Lung inflation, 525  
 Lysophosphatides, 27

**M**

Maximal vasodilator capacity, 457  
 Membranes, 27  
   potential, 167, 514  
   receptors, 532  
 Mesenteric circulation, 233  
 Metabolism, 233  
 Microcirculation, 43, 652, 711  
 Microelectrodes, 321  
 Microspheres, 10  
 Middle cerebral artery, 751  
 Models  
   ischemia, 614  
   study, 602  
 Modulation of nexal resistance, 347  
 Morphometry, 19  
 Muscle  
   and pump arterial impedance, 430  
   cardiac, 465  
   mechanics, 189  
 Myocardial anisotropy, 330  
 Myocardial blood flow, 196, 411  
 Myocardial cells, 532  
 Myocardial infarction, 743  
   experimental, 486  
 Myocardial ischemia, 27, 411  
 Myocardial metabolism, 56  
 Myocardial tissue culture, 543  
 Myocardium, 662, 777

Myogenic and metabolic theories, 43  
 Myosin, 802

**N**

Neural control, 371  
   of cyclic AMP in heart, 551  
 Neurogenic dilator, 421  
 Neurogenic relaxation, 769  
 New England Deaconess Hospital Rats (NEDH), 504  
 Nonadrenergic, noncholinergic nerve, 751  
 Norepinephrine, 504, 769  
   release, 594  
   -stimulated hypertrophy, 787  
 Nucleoside transport inhibitors, 569

**O**

Oscillatory membrane potential, 142  
 Ouabain, 142, 514, 543  
 Oxygen, 580, 652  
   transport, 233

**P**

Papillary plasma flow, 703  
 Pause duration, 37  
 Peripheral lymph, 305  
 Permeability lung edema, 657  
 Phase, transition, 131  
 Phentolamine, 371  
 Phosphorylase, 551  
 Pirbuterol, 56  
 Plasma catecholamines (reflex control), 391  
 Platelets and arteriosclerosis, 587  
 Plethysmography, 457  
 Polyploidy, 280  
 Post-infarction ventricular rhythms, 152  
 Potassium-free solution, 514  
 Prenalterol, 56  
 Prenatal potency and postnatal closure of the ductus, 580  
 Primate, 73  
 Procaine, 363  
 Propranolol, 371  
 Prostacyclin, 67  
 Prostaglandins, 580, 652, 694, 743  
   6-Keto-PGE<sub>1</sub>, 67  
   PGE<sub>2</sub>, 67, 594  
   PGI<sub>2</sub>, 580, 594  
   synthesis, 594  
 Protein kinase, cyclic AMP-dependent, 551  
 Protein sieving, 305  
 Pulmonary artery, 479  
   occlusion, 196  
 Pulmonary C-fibers, 525  
 Pulmonary hypertension, 196  
 Pulmonary vascular bed, 95  
 Pulsed doppler, 810  
 Pump function, 430  
 Purine metabolism, 102

**R**

Radioactive microspheres, 411  
 Radioligand binding, 250, 504  
 Rapidly adapting receptors, 525  
 Rapid resetting, 241  
 Rat cremaster muscle, 43  
 Rat myocardial cell culture, 787

Rats, 241  
 Rat trabeculae, 37  
 Reactive hyperemia, 457  
 Receptor "down regulation," 504  
 Receptors, 314  
    $\alpha$ -adrenergic, 250, 411  
    $\beta$ -adrenergic, 56  
 Recovery metabolism, 777  
 Reflections, 479  
 Refractory period, 486  
 Renal function, 694  
 Renin-angiotensin, 703  
 Repolarization, 347  
 Resistance vessel, 514  
 Respiratory control, 624  
 Respiratory frequency, 624  
 Rhythms, 152

**S**

Sarcolemma, 117  
 Sarcomere length, 37  
 Sarcoplasmic reticulum, 363  
 Serum-stimulated hypertrophy, 787  
 Set point, 711  
 Single ventricular cells, 142  
 Sinoatrial node, 271  
 Sinus electrogram, 760  
 Sinus node, 760  
 Slow conduction, 614  
 Slowly adapting receptors, 525  
 Smooth muscle cells, 19, 280  
 Sodium  
   balance, 314  
   meclofenamate, 594  
   Na-Ca exchange, 543  
   Na-K, 543  
 Spontaneous activity, 769  
 Spontaneously hypertensive rats (SHR), 10, 280  
 Step size, 37  
 Stroke volume, 810  
 Structural vascular changes, 457  
 Submandibular gland, 385  
 Supersensitivity, 532  
 Sympathetic afferent fibers, 83  
 Sympathetic nerves, 733  
 Syncytium, 602  
 Systemic vascular bed, 95

**T**

Thallium, 181  
 Thermal stress, 73  
 Thrombin and venous smooth muscle, 439  
 Thromboxane, 743  
   carbocyclic A<sub>2</sub>, 675  
 Tidal volume, 624  
 Tissue bath preparation, 602  
 Tissue oxygenation, 43  
 Torsades de pointes tachycardia, 152  
 Transitional zone, 321  
 Transmembrane action potential, 189  
 Transmural cellular damage, 683  
 Trifluoperazine (phenothiazines), 448  
 Troponin, 290  
 Troponin C, 602  
 Trypan blue exclusion, 560

**V**

Vagal afferents, 391

Vagus, 760  
Vascular action  
  of prostaglandin I<sub>2</sub>, 675  
  of verapamil, 675  
Vascular capacitance, 95  
Vascular resistance, 95, 810  
Vascular smooth muscle, 514, 711  
Velocity, 347  
Venusus, 580

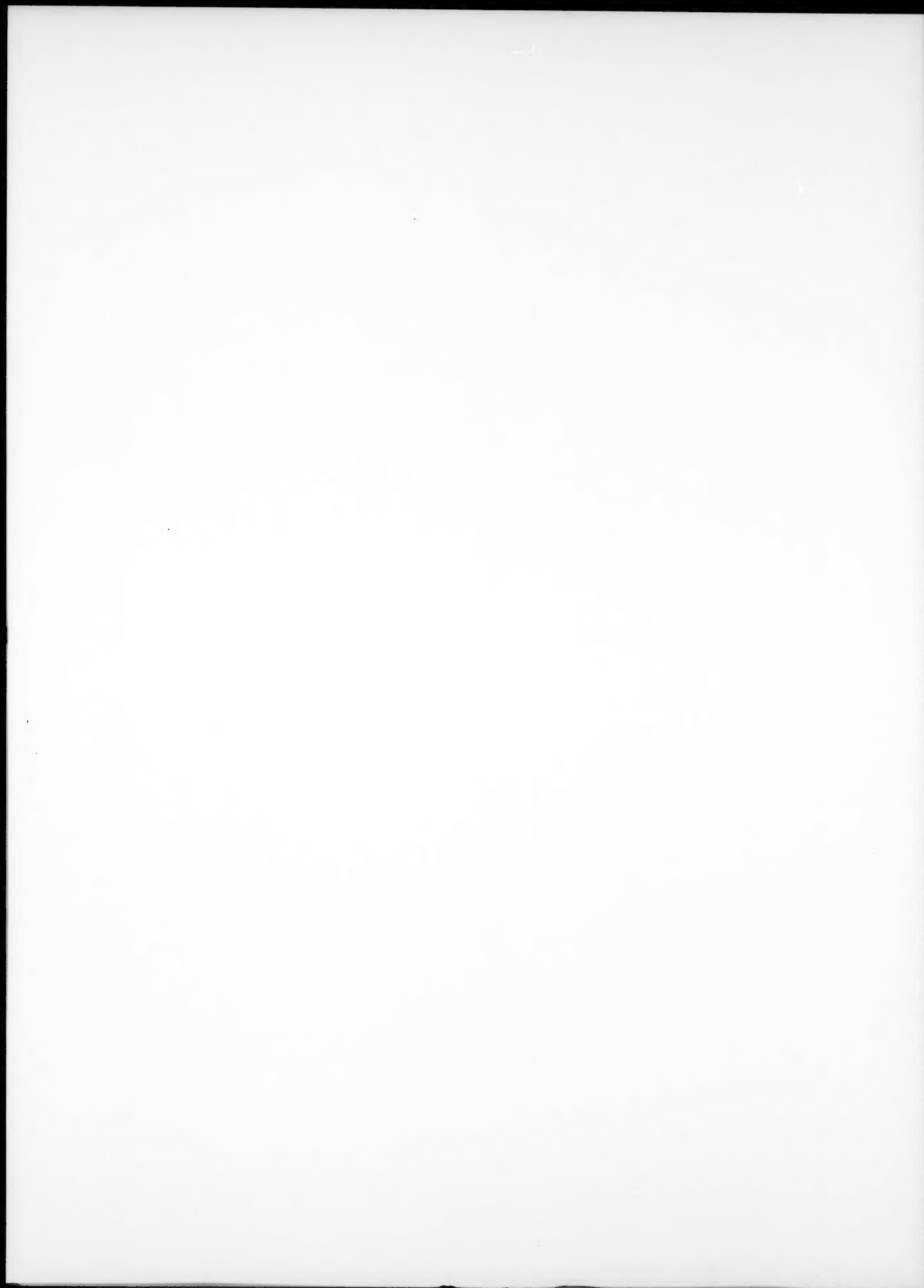
Ventilation, 624  
Ventricular compliance, 465  
Ventricular muscle, 722  
Verapamil, 637  
Viscerosomatic convergence, 83  
Viscosity, 233  
Vitelline artery blood pressure, 810  
von Willebrand's disease, 587

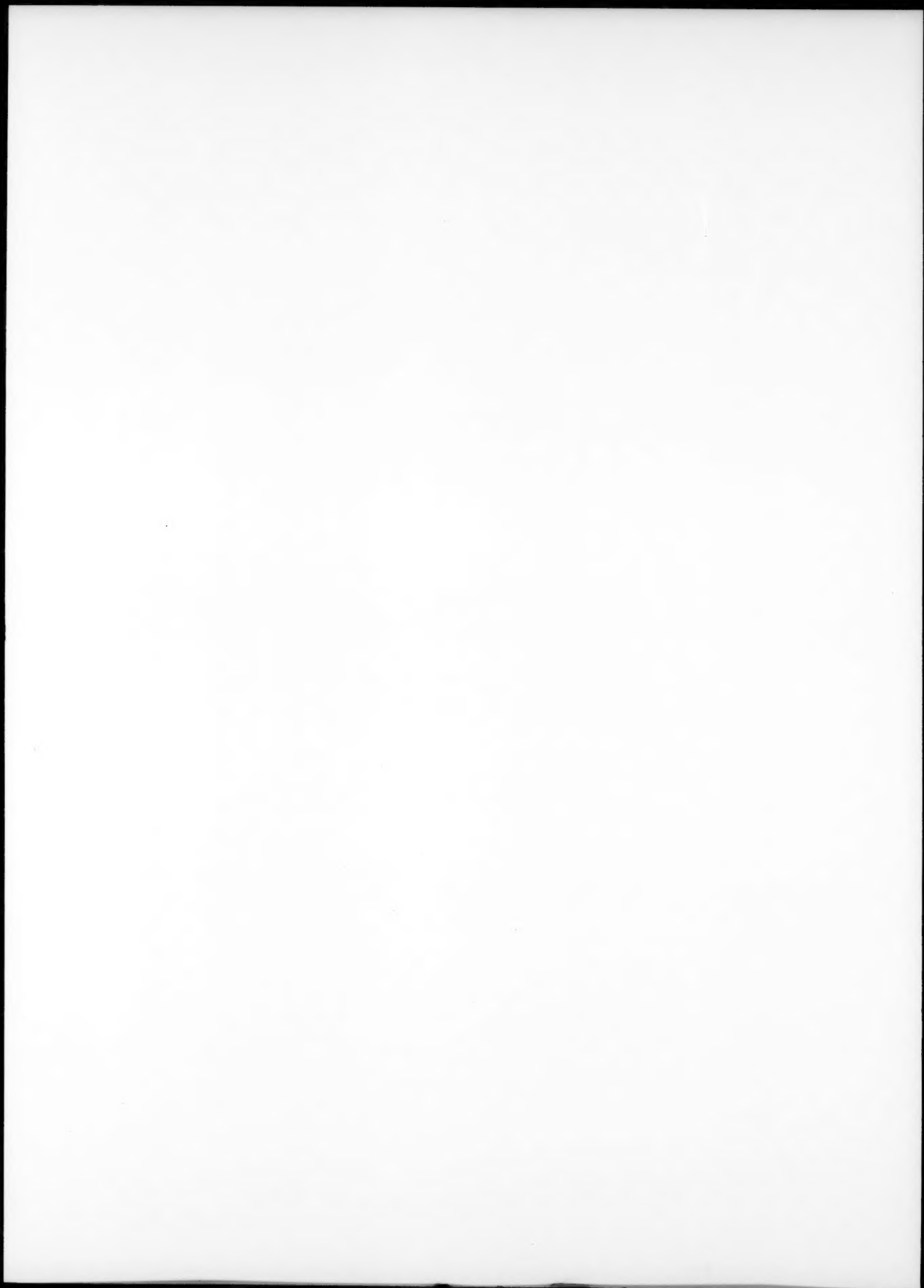
**W**

Wall stress, 430  
Wavefront phenomenon, 683

**Y**

Yohimbine, 225







---

---

# ***Circulation Research***

AN OFFICIAL JOURNAL OF THE AMERICAN HEART ASSOCIATION

---

---

**VOLUME 51**

**July-December  
1982**

**AMERICAN HEART ASSOCIATION, INC.**



# **Circulation Research**

**An Official Journal of the American Heart Association**

*Circulation Research* provides a medium for bringing together basic research on the cardiovascular system from various disciplines including biology, biochemistry, biophysics, morphology, pathology, physiology, and pharmacology. The Journal also will accept for publication manuscripts on clinical research that contribute to an understanding of fundamental problems.

## **Editor**

FRANCOIS M. ABBOUD

## **Associate Editors**

MICHAEL J. BRODY, DONALD D. HEISTAD, ALLYN L. MARK

Editorial Office: The Cardiovascular Center, University of Iowa College of Medicine, Iowa City, Iowa 52242

## **EDITORIAL BOARD**

NORMAN R. ALPERT  
MORTON F. ARNSDORF  
ROBERT J. BACHE  
ROGER C. BARR  
ARTHUR L. BASSETT  
DEREK BERGEL  
VERNON S. BISHOP  
COLIN M. BLOOR  
F. NORMAN BRIGGS  
KENNETH L. BRIGHAM  
ARTHUR M. BROWN  
MARY JO BURGESS  
EDWARD CARMELIET  
ROBERT B. CASE  
HAZEL M. COLERIDGE  
JOHN C. G. COLERIDGE  
PAUL F. CRANFIELD  
JOHN N. DIANA  
GERALD F. DiBONA  
JAMES M. DOWNEY  
S. EVANS DOWNING  
ALEXANDRE FABIATO  
ERIC O. FEIGL  
CARLOS M. FERRARIO  
HARRY A. FOZZARD

W. RAY GIBBONS  
JOSEPH P. GILMORE  
ROBERT W. GORE  
K. LANCE GOULD  
JOSEPH C. GREENFIELD, JR.  
DOUGLAS M. GRIGGS, JR.  
EDGAR HABER  
WILLIAM HALPERN  
BURT B. HAMRELL  
JOEL HARDMAN  
R. KENT HERMSMEYER  
JULIEN I.E. HOFFMAN  
NORMAN K. HOLLENBERG  
WILLIAM B. HOOD, JR.  
REX L. JAMISON  
BÖRJE JOHANSSON  
PAUL C. JOHNSON  
PHILIP A. KHAIRALLAH  
EDWARD S. KIRK  
FRANCIS J. KLOCKE  
FRANKLYN G. KNOX  
HERMES A. KONTOS  
MELVIN L. MARCUS  
PAUL J. MARTIN  
ISRAEL MIRSKY  
SOLBERT PERMUTT

GERALD H. POLLACK  
DONALD J. REIS  
LORING B. ROWELL  
PHILLIP G. SCHMID  
EVELINE E. SCHNEEBERGER  
SIDNEY S. SCHREIBER  
RICHARD SKALAK  
LEONARD T. SKEGGS  
BURTON E. SOBEL  
R. JOHN SOLARO  
ANDREW P. SOMLYO  
HARVEY V. SPARKS, JR.  
NORMAN C. STAUB  
HAROLD C. STRAUSS  
MERRILL TARR  
AUBREY E. TAYLOR  
MARC D. THAMES  
PAUL M. VANHOUTTE  
STEPHEN F. VATNER  
AUGUST M. WATANABE  
RICHARD P. WHITE  
HARVEY WOLINSKY  
RADOVAN ZAK  
BEN G. ZIMMERMAN  
BENJAMIN W. ZWEIFACH

ROBERT M. BERNE, BRIAN F. HOFFMAN, MATTHEW N. LEVY, JOHN T. SHEPHERD, *Consulting Editors*  
LYNNE CANNON, *Managing Editor*  
MARGERY POTTORFF, *Assistant to the Editor*

## **PUBLICATIONS COMMITTEE, AMERICAN HEART ASSOCIATION**

ROBERT M. BERNE, *Chairman*  
Charlottesville, VA

FRANCOIS M. ABBOUD  
Iowa City, IA

JOHN T. BAKER  
Chicago, IL

H. J. M. BARNETT  
Ontario, Canada

EDWIN L. BIERMAN  
Seattle, WA

MARY JO BURGESS  
Salt Lake City, UT

HARRIET P. DUSTAN  
Birmingham, AL

JOHN W. EVERS  
Chicago, IL

THOMAS P. GRAHAM, JR.  
Nashville, TN

LOUISE MANSFIELD  
Seattle, WA

FRANK I. MARCUS  
Tucson, AZ

ALBERT J. MILLER  
Chicago, IL

ROBERT A. O'ROURKE  
San Antonio, TX

SHAHBUDIN H. RAHIMTOOLA  
Los Angeles, CA

ELLIOT RAPAPORT  
San Francisco, CA

EDWIN W. SALZMAN  
Boston, MA

FRANK M. YATSU  
Portland, OR

# Circulation Research

AN OFFICIAL JOURNAL OF THE AMERICAN HEART ASSOCIATION

## VOLUME 51

July-December 1982

### No. 1 (July)

Brief Reviews: Intercellular Communication in Cardiac Muscle. <i>W.C. De Mello</i>	1
Effects of Duration and Severity of Arterial Hypertension and Cardiac Hypertrophy on Coronary Vasodilator Reserve. <i>Roger D. Wangler, Kevin G. Peters, Melvin L. Marcus, and Robert J. Tomanek</i>	10
Quantitative Structural Changes of the Rat Thoracic Aorta in Early Spontaneous Hypertension: Tissue Composition, and Hypertrophy and Hyperplasia of Smooth Muscle Cells. <i>Giorgio Olivetti, Massimo Melissari, Germano Marchetti, and Piero Anversa</i>	19
Incorporation of Radiolabeled Lysophosphatidyl Choline into Canine Purkinje Fibers and Ventricular Muscle: Electrophysiological, Biochemical, and Autoradiographic Correlations. <i>Richard W. Gross, Peter B. Corr, Benjamin I. Lee, Jeffrey E. Saffitz, William A. Crafford, Jr., and Burton E. Sobel</i>	26
The Force-Velocity Relation and Stepwise Shortening in Cardiac Muscle. <i>D.V. Vassallo and G.H. Pollack</i>	37
Autoregulation of Blood Flow within Individual Arterioles in the Rat Cremaster Muscle. <i>Robert J. Morff and Harris J. Granger</i>	43
Regulation of Large Coronary Arteries by $\beta$ -Adrenergic Mechanisms in the Conscious Dog. <i>Stephen F. Vatner, Thomas H. Hintze, and Pilar Macho</i>	56
Low Dose Intrarenal Infusions of PGE <sub>2</sub> , PGI <sub>2</sub> , and 6-Keto-PGE <sub>1</sub> Vasodilate the in Vivo Rat Kidney. <i>Edwin K. Jackson, Hugo Th. Heidemann, Robert A. Branch, and John F. Gerkens</i>	67
Influence of Heat Stress on Arterial Baroreflex Control of Heart Rate in the Baboon. <i>Andrew J. Gorman and Duane W. Proppe</i>	73
Responses of Thoracic Spinothalamic Neurons to Intracardiac Injection of Bradykinin in the Monkey. <i>Robert W. Blair, R. Neal Weber, and Robert D. Foreman</i>	83
Carotid Sinus Baroreceptor Reflex Control and Epinephrine: Influence on Capacitive and Resistive Properties of the Total Pulmonary Vascular Bed of the Dog. <i>Artin A. Shoukas</i>	95
Brief Communications: Accelerated Repletion of ATP and GTP Pools in Postischemic Canine Myocardium using a Precursor of Purine de Novo Synthesis. <i>Judith L. Swain, James J. Hines, Richard L. Sabina, and Edward W. Holmes</i>	102
Instructions to Authors	106
News from the American Heart Association	110

### No. 2 (August)

Calcium Depletion in Rabbit Myocardium: Ultrastructure of the Sarcolemma and Correlation with the Calcium Paradox. <i>Joy S. Frank, Terrell L. Rich, Sarah Beydler, and Michael Kreman</i>	117
Calcium Depletion in Rabbit Myocardium: Calcium Paradox Protection by Hypothermia and Cation Substitution. <i>Terrell L. Rich and Glenn A. Langer</i>	131
Transient Depolarization and Spontaneous Voltage Fluctuations in Isolated Single Cells from Guinea Pig Ventricles: Calcium-Mediated Membrane Potential Fluctuations. <i>Hiroko Matsuda, Akinori Noma, Yoshihisa Kurachi, and Hiroshi Irisawa</i>	142
Ventricular Activation Patterns of Spontaneous and Induced Ventricular Rhythms in Canine One-Day-Old Myocardial Infarction: Evidence for Focal and Reentrant Mechanisms. <i>Nabil El-Sherif, Rahul Mehra, William B. Gough, and Robert H. Zeiler</i>	152
The Role of Calcium in Overdrive Suppression of Canine Cardiac Purkinje Fibers. <i>Ezio Musso and Mario Vassalle</i>	167
Inosine: A Protective Agent in an Organ Culture Model of Myocardial Ischemia. <i>Samuel Z. Goldhaber, Gerald M. Pohost, Robert A. Kloner, Eloise Andrews, John B. Newell, and Joanne S. Ingwall</i>	181
Reversible Alterations in Excitation-Contraction Coupling during Myocardial Hypertrophy in Rat Papillary Muscle. <i>Joseph M. Capasso, Ronald S. Aronson, and Edmund H. Sonnenblick</i>	189
Transmural Right Ventricular Blood Flow during Acute Pulmonary Artery Hypertension in the Sedated Dog: Evidence for Subendocardial Ischemia Despite Residual Vasodilator Reserve. <i>Frank L. Gold and Robert J. Bache</i>	196
The Effects of Atrial Fibrillation on Atrial Pressure-Volume and Flow Relationships. <i>Carl W. White, Richard E. Kerber, Harvey R. Weiss, and Melvin L. Marcus</i>	205
Attenuation of Nephrotoxic Acute Renal Failure in the Dog with Angiotensin-Converting Enzyme Inhibitor (SQ-20,881). <i>Armando Lindner, Ralph E. Cutler, and Anthony J. Bell</i>	216
The Release of Endogenous Norepinephrine from the Coccygeal Artery of Spontaneously Hypertensive and Wistar-Kyoto Rats. <i>Matthew P. Galloway and Thomas C. Westfall</i>	225
Optimal Hematocrit for Oxygenation of Canine Intestine. <i>A.P. Shepherd and G.L. Riedel</i>	233
Rapid Resetting of Low Pressure Vagal Receptors in the Superior Vena Cava of the Rat. <i>Steven W. Mifflin and Diana L. Kunze</i>	241

Brief Communications: Identification of $\alpha_1$ -Adrenergic Receptors in Cultured Rat Myocardial Cells with a New Iodinated $\alpha_1$ -Adrenergic Antagonist, [ $^{125}$ I]BE 2254. Linda E. Kupfer, Richard B. Robinson, and John P. Bilezikian	250
News from the American Heart Association	255

### No. 3 (September)

Influence of Autoregulation and Capacitance on Diastolic Coronary Artery Pressure-Flow Relationships in the Dog. William P. Dole and Vernon S. Bishop	261
Intracellular Potassium Activity in Rabbit Sinoatrial Node: Evaluation during Spontaneous Activity and Arrest. Augustus O. Grant and Harold C. Strauss	271
Alterations in Vascular Smooth Muscle Mass in the Spontaneously Hypertensive Rat: Role of Cellular Hypertrophy, Hyperploidy, and Hyperplasia. Gary K. Owens and Stephen M. Schwartz	280
Stimulation of $Ca^{++}$ Binding and ATPase Activity of Dog Cardiac Myofibrils by AR-L 115BS, a Novel Cardiotonic Agent. R. John Solaro and J. Caspar Rüegg	290
Quantitative Changes in the Capillary Bed during Developing, Peak, and Stabilized Cardiac Hypertrophy in the Spontaneously Hypertensive Rat. Robert J. Tomanek, James C. Searls, and Peter A. Lachenbruch	295
Changes in Interstitial Volume and Masses of Albumin and IgG in Rabbit Skin and Skeletal Muscle after Saline Volume Loading. Richard J. Mullins and Donald R. Bell	305
Angiotensin II Receptors on Human Platelets. Thomas J. Moore and Gordon H. Williams	314
Electrophysiology of the Normal-to-Hypoxic Transition Zone. Feliksas Bukauskas	321
Potential Fields Generated by Oblique Dipole Layers Modeling Excitation Wavefronts in the Anisotropic Myocardium: Comparison with Potential Fields Elicited by Paced Dog Hearts in a Volume Conductor. Piero Colli-Franzone, Luciano Guerri, Carla Viganotti, Emilio Macchi, Silvana Baruffi, Santa Spaggiari, and Bruno Taccardi	330
Active Modulation of Electrical Coupling between Cardiac Cells of the Dog: A Mechanism For Transient and Steady State Variations in Conduction Velocity. Madison S. Spach, J. Mailen Kootsey, and Joseph D. Sloan	347
Cellular Calcium Turnover in the Perfused Rat Heart: Modulation by Caffeine and Procaine. Douglas R. Hunter, Robert A. Haworth, and Herbert A. Berkoff	363
Adrenergic Influence in the Coronary Circulation of Conscious Dogs during Maximal Vasodilation with Adenosine. Gus J. Vlahakes, Robert W. Baer, Paul N. Uhlig, Edward D. Verrier, J. David Bristow, and Julien I. E. Hoffman	371
Role of Kallikrein in the Hypotensive Effect of Captopril after Sympathetic Stimulation of the Rat Submandibular Gland. Torill Ørstavik, Oscar A. Carretero, Liv Johansen, and A. Guillermo Scicli	385
Cardiovascular Reflex Modulation of Plasma Catecholamine Concentrations in the Anesthetized Cat. Cheryl M. Heesch and Vernon S. Bishop	391
Brief Communications: Effects of Lateral Reticular Nucleus Lesions on the Exercise Pressor Reflex in Cats. Gary A. Iwamoto, Marc P. Kaufman, Barry R. Botterman, and Jere H. Mitchell	400
News from the American Heart Association	404

### No. 4 (October)

Progressive Coronary Vasoconstriction during Relative Ischemia in Canine Myocardium. Mark W. Gorman and Harvey V. Sparks, Jr.	411
Further Evidence for a Muscarinic Component to the Neural Vasodilator Innervation of Cerebral and Cranial Extracerebral Arteries of the Cat. John A. Bevan, Georgette M. Buga, Charlene A. Jope, Richard S. Jope, and Hideki Moritoki	421
Isolated Cat Trabeculae in a Simulated Feline Heart and Arterial System: Contractile Basis of Cardiac Pump Function. Gijs Elzinga and Nico Westerhof	430
Heterogeneous Behavior of the Canine Arterial and Venous Wall: Importance of the Endothelium. J. G. De Mey and P. M. Vanhoutte	439
Regulation of Phosphorylase Kinase in Rat Ventricular Myocardium: Role of Calmodulin. Diane K. Werth, David R. Hathaway, and August M. Watanabe	448
Characteristics of Responses to Salt Loading and Deprivation in Hypertensive Subjects. Akira Takeshita, Tsutomu Imaizumi, Toshiaki Ashihara, and Motoomi Nakamura	457
Acute Alterations in Left Ventricular Diastolic Chamber Stiffness: Role of the "Erectile" Effect of Coronary Arterial Pressure and Flow in Normal and Damaged Hearts. W. Mark Vogel, Carl S. Apstein, Lance L. Briggs, William H. Gaasch, and James Ahn	465
Pulse Wave Reflection: Can It Explain the Differences Between Systemic and Pulmonary Pressure and Flow Waves? A Study in Dogs. G. C. van den Bos, N. Westerhof, and O. S. Randall	479
Dissimilarities in the Electrophysiological Abnormalities of Lateral Border and Central Infarct Zones Cells after Healing of Myocardial Infarction in Cats. Samuel S. Wong, Arthur L. Bassett, John S. Cameron, Kristina Epstein, Patricia Kozlovskis, and Robert J. Myerburg	486
Quantitative Regional Determination of Morphometric Indices of the Total and Perfused Capillary Network in the Rat Brain. Harvey R. Weiss, Ellen Buchweitz, Timothy J. Murtha, and Michael Auletta	494
$\beta$ -Adrenergic Receptor Subtypes in the Rat Renal Cortex: Selective Regulation of $\beta_1$ -Adrenergic Receptors by Pheochromocytoma. Marshall D. Snively, Harvey J. Motulsky, Esam Moustafa, Lawrence C. Mahan, and Paul A. Insel	504

Potentiating and Depressive Effects of Ouabain and Potassium-Free Solutions on Rat Mesenteric Resistance Vessels. <i>M. J. Mulvany, H. Nilsson, J. A. Flatman, and N. Korsgaard</i>	514
Responses to Inflation of Vagal Afferents with Endings in the Lung of Dogs. <i>M. P. Kaufman, G. A. Iwamoto, J. H. Ashton, and S. S. Cassidy</i>	525
Brief Communications: Rat Cardiac Muscle Single Cell Automaticity Responses to $\alpha$ - and $\beta$ -Adrenergic Agonists and Antagonists. <i>Kent Hermsmeyer, Ronald Mason, Susan H. Griffen and Paul Becker</i>	532
News from the American Heart Association	538

## No. 5 (November)

Ca <sup>++</sup> Distribution after Na <sup>+</sup> Pump Inhibition in Cultured Neonatal Rat Myocardial Cells. <i>Janis M. Burt and Glenn A. Langer</i>	543
Neural Regulation of Cyclic AMP, Cyclic AMP-Dependent Protein Kinase, and Phosphorylase in Bullfrog Ventricular Myocardium. <i>Ronald R. Fiscus and Steven E. Mayer</i>	551
Release of Enzymes from Adult Rat Heart Myocytes. <i>Michael P. Murphy, Charlene Hohl, Gerald P. Brierley, and Ruth A. Altschuld</i>	560
Extracellular Action of Adenosine and the Antagonism by Aminophylline on the Atrioventricular Conduction of Isolated Perfused Guinea Pig and Rat Hearts. <i>Luiz Belardinelli, Richard A. Fenton, Alexander West, Joel Linden, John S. Althaus, and Robert M. Berne</i>	569
The Response of the Lamb Ductus Venosus to Prostaglandins and Inhibitors of Prostaglandin and Thromboxane Synthesis. <i>Ayotunde S.O. Adeagbo, Flavio Coceani, and Peter M. Olley</i>	580
Arteriosclerosis in Normal and von Willebrand Pigs: Long-Term Prospective Study and Aortic Transplantation Study. <i>Valentin Fuster, David N. Fass, Michael P. Kaye, Miguel Josa, Alan R. Zinmeister, and E.J. Walter Bowie</i>	587
Attenuation by Prostaglandins of the Facilitatory Effect of Angiotensin II at Adrenergic Prejunctional Sites in the Isolated Krebs-Perfused Rat Heart. <i>Stephen M. Lanier and K.U. Malik</i>	594
The Impact of Adjacent Isotropic Fluids on Electrograms from Anisotropic Cardiac Muscle: A Modeling Study. <i>D.B. Geselowitz, R.C. Barr, M.S. Spach, and W.T. Miller, III</i>	602
Interaction of Acidosis and Increased Extracellular Potassium on Action Potential Characteristics and Conduction in Guinea Pig Ventricular Muscle. <i>Yutaka Kagiya, Jeffery L. Hill, and Leonard S. Gettes</i>	614
Carotid Sinus Baroreceptor Reflex Control of Respiration. <i>Martha J. Brunner, Marc S. Sussman, Andrew S. Greene, Clayton H. Kallman, and Artin A. Shoukas</i>	624
Effects of Extracellular Calcium Ions, Verapamil, and Lanthanum on Active and Passive Properties of Canine Cardiac Purkinje Fibers. <i>Milton L. Pressler, Victor Elharrar, and John C. Bailey</i>	637
Brief Communications	
The Effect of O <sub>2</sub> and CO <sub>2</sub> on Prostaglandin Levels in the Cat Cerebral Cortex. <i>Earl F. Ellis, Enoch P. Wei, Carolyn S. Cockrell, Dorothy L. Traweck, Joseph J. Saady, and Hermes A. Kontos</i>	652
Role of the Endothelial Cell Cytoskeleton in Control of Endothelial Permeability. <i>D. Michael Shasby, Sandra S. Shasby, James M. Sullivan, and Michael J. Peach</i>	657
Amrinone Activates K <sup>+</sup> -Depolarized Atrial and Ventricular Myocardium of Guinea Pigs. <i>H. Richard Adams, Jeffery Rhody, and John L. Sutko</i>	662
Letters to the Editor	666
Erratum	668
News from the American Heart Association	669

## No. 6 (December)

Mechanism of Action of Carbocyclic Thromboxane A <sub>2</sub> and Its Interaction with Prostaglandin I <sub>2</sub> and Verapamil in Isolated Arteries. <i>Noboru Toda</i>	675
Transmural Cellular Damage and Blood Flow Distribution in Early Ischemia in Pig Hearts. <i>Hisayoshi Fujiwara, Muhammad Ashraf, Shigeru Sato, and Ronald W. Millard</i>	683
Studies of the Effects of Essential Fatty Acid Deficiency in the Rat. <i>John W. Cox, Gregory W. Rutecki, Linda L. Francisco, and Thomas F. Ferris</i>	694
Effects of Diuretics on Inner Medullary Hemodynamics in the Dog. <i>Samuel Spitalewitz, Shyan-Yih Chou, Pierre F. Faubert, and Jerome G. Porush</i>	703
Augmented Tissue Oxygen Supply during Standard Muscle Contraction in the Hamster: Relative Contributions of Capillary Recruitment, Functional Dilation, and Reduced Tissue PO <sub>2</sub> . <i>Bruce Klitzman, David N. Damon, Richard J. Gorczynski, and Brian R. Duling</i>	711
Amantadine-Induced Diastolic Depolarization and Automaticity in Ventricular Muscle. <i>Joseph J. Salata, Jose Jalife, James L. Megna, and Gabriel Alperovich</i>	722
A Neural Factor Involved in Increase of the Glycogen Phosphorylase Activity after Coronary Ligation in Both Ischemic and Nonischemic Areas of the Dog Heart. <i>Kenji Sakai and Yasushi Abiko</i>	733
The Arachidonic Acid Metabolic Capacity of Canine Myocardium is Increased during Healing of Acute Myocardial Infarction. <i>Edward R. McCluskey, Peter B. Corr, Benjamin I. Lee, Jeffrey E. Saffitz, and Philip Needleman</i>	743
Neurogenic Electrical Responses of Single Smooth Muscle Cells of the Dog Middle Cerebral Artery. <i>Hikaru Suzuki and Shigeru Fujiwara</i>	751

<b>Effects of Ouabain and Vagal Stimulation on Sinus Nodal Function in Conscious Dogs.</b> <i>Robert J. Hariman and Brian F. Hoffman</i> .....	760
<b>Relaxation to Transmural Nerve Stimulation and Exogenously Added Norepinephrine in Porcine Cerebral Vessels: A Study Utilizing Cerebrovascular Intrinsic Tone.</b> <i>Raymond J. Winquist, R. Clinton Webb, and David F. Bohr</i> .....	769
<b>Heat Production during Hypoxic Contracture of Rat Myocardium.</b> <i>Ch. Holubarsch, N.R. Alpert, R. Goulette, and L.A. Mulieri</i> .....	777
<b>Myocyte Hypertrophy in Neonatal Rat Heart Cultures and Its Regulation by Serum and by Catecholamines.</b> <i>Paul Simpson, Ann McGrath, and Shoshana Savion</i> .....	787
<b>Brief Communications:</b>	
<b>Histochemical Detection of Specific Isozymes of Myosin in Rat Ventricular Cells.</b> <i>Andrea Weisberg, Saul Winegrad, Marianne Tucker, and George McClellan</i> .....	802
<b>Developmental Hemodynamic Changes in the Chick Embryo from Stage 18 to 27.</b> <i>Edward B. Clark and Norman Hu</i> .....	810
<b>Letters to the Editor</b> .....	816
<b>Acknowledgment to Reviewers</b> .....	826
<b>News from the American Heart Association</b> .....	829
<b>Author Index</b> .....	834
<b>Subject Index</b> .....	836



